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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Akram et al.

Serial No.: 10/033,234

Filed: December 28, 2001

For: MULTI-CHIP MODULE SYSTEM AND
METHOD OF FABRICATION

Examiner: Unknown

Group Art Unit: 2812

Attorney Docket No.: 2754.5US (95-0742.5)

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PRELIMINARY AMENDMENT

Box Non-Fee Amendment
Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination of the above-referenced patent application on the merits, entry of the amendments as set forth herein is respectfully solicited.

IN THE CLAIMS: /

Claims 1-12 and 14-41 have been amended herein. All of the pending claims 1 through 41 are presented, pursuant to 37 C.F.R. §§ 1.121(c)(1)(i) and 1.121(c)(3), in clean form below. Please enter these claims as amended. Attached is a marked-up version of the claims amended herein pursuant to 37 C.F.R. § 1.121(c)(1)(ii).

1. (Amended) A method of manufacturing a multichip module system comprising:
forming a substrate for use in said multichip module system, said substrate having at least a first position for locating a first semiconductor device thereat and having at least one other vacant position for locating a second semiconductor device thereat on said substrate;
installing said first semiconductor device in the at least a first position of the substrate;
determining if the multichip module system has an unacceptable semiconductor device; and
repairing the substrate to have an acceptable semiconductor device by installing a second semiconductor device in the at least one other vacant position in the substrate.

2. (Amended) The method of claim 1, further comprising:
installing a known-good-die in the at least one other vacant position on the substrate for use in said multichip module system.

3. (Amended) The method of claim 1, further comprising:
testing said multichip module system for compliance with predetermined operational characteristics for the second semiconductor device.

4. (Amended) The method as defined in claim 1, further comprising:
repairing the substrate for use in said multichip module system to have said acceptable semiconductor device thereon by installing said second semiconductor device having an adapter attached thereto, the adapter having to be operably installed in the at least one other vacant position in the substrate.

5. (Amended) The method of claim 4, further comprising:
installing a known-good-die having said adapter attached thereto, the adapter to be operably
installed in the at least one other vacant position in the substrate for use in said multichip
module system as the second semiconductor device.

6. (Amended) The method as defined in claim 5, further comprising:
testing said multichip module system to ensure compliance with predetermined operational
characteristics for the second semiconductor device.

7. (Amended) A method of manufacturing a multichip module system comprising:
forming a substrate for use in said multichip module system, the substrate having at least a first
position for locating a first semiconductor device thereat and having at least one other
vacant position for locating a second semiconductor device thereat on the substrate;
installing said first semiconductor device in the at least a first position of the substrate;
determining if the multichip module system has an unacceptable semiconductor device; and
repairing the substrate to have an acceptable semiconductor device by installing said second
semiconductor device in the at least one other vacant position in the substrate, the second
semiconductor device comprising a known-good-die.

8. (Amended) The method of claim 7, further comprising:
testing said multichip module system to ensure compliance with predetermined operational
characteristics for the second semiconductor device.

9. (Amended) A method of manufacturing a multichip module system comprising:
forming a substrate for use in said multichip module system, the substrate having at least a first
position for locating a first semiconductor device thereat and having at least one other
vacant position for locating a second semiconductor device thereat on the substrate;
installing said first semiconductor device in the at least a first position of the substrate;
determining if the multichip module system has an unacceptable semiconductor device; and
repairing the substrate to have an acceptable semiconductor device thereon by installing said
second semiconductor device having an adapter attached thereto, the adapter to be
operably installed in the at least one other vacant position in the substrate.

10. (Amended) The method of claim 9, further comprising:
installing a known-good-die having said adapter attached thereto, the adapter having to be
operably installed in the at least one other vacant position in the substrate for use in said
multichip module system as the second semiconductor device.

11. (Amended) The method as defined in claim 10, further comprising:
testing said multichip module system for compliance with predetermined operational
characteristics for the second semiconductor device.

12. (Amended) A method of manufacturing a multichip module system comprising:
forming a substrate for use in said multichip module system, the substrate having at least first and second positions thereon, the at least first and second positions for locating a first and second semiconductor device thereat, and having at least one other vacant position for locating a third semiconductor device thereat on the substrate;
installing said first and second semiconductor devices in the respective at least first and second positions of the substrate, the first and second semiconductor devices each having a predetermined performance capability;
determining if the multichip module system has an unacceptable semiconductor device thereon;
disabling circuitry connected to the unacceptable semiconductor device; and
repairing the substrate to have an acceptable semiconductor device thereon by installing a third semiconductor device in the at least one other vacant position in the substrate, the third semiconductor device installed in the at least one other vacant position having said predetermined performance capability.

13. The method of claim 12, further comprising:
removing the unacceptable semiconductor device from the substrate.

14. (Amended) A method of manufacturing a multichip module system comprising:
forming a substrate for use in said multichip module system, said substrate having at least first and second positions for locating a first and second semiconductor device thereat, and having at least one other vacant position for locating a third semiconductor device thereat;
installing a first and second semiconductor device in said respective first and second positions of said substrate, said first and second semiconductor devices each having a predetermined performance capability;
determining if said multichip module system has an unacceptable semiconductor device thereon;
disabling circuitry connected to said unacceptable semiconductor device; and

repairing said substrate to have an acceptable semiconductor device thereon by installing said third semiconductor device in said at least one other vacant position in said substrate, said third semiconductor device installed in said at least one other vacant position having a predetermined performance capability, said third semiconductor device comprising a known-good-die having a predetermined performance capability.

15. (Amended) The method of claim 14, further comprising:
testing said multichip module system for compliance with said predetermined performance capability for said third semiconductor device.

16. (Amended) The method of claim 15, further comprising:
repairing said substrate for use in said multichip module system to have said acceptable semiconductor device thereon by installing said third semiconductor device in said at least one other vacant position in said substrate, said third semiconductor device installed in said at least one other vacant position having said predetermined performance capability of a combined predetermined performance capability of said first and the second semiconductor device.

17. (Amended) A method of manufacturing a multichip module system comprising:
forming a substrate for use in said multichip module system, said substrate having at least first and second positions thereon, said first and second positions each for locating a first and second semiconductor device thereat, and having at least one other vacant position for locating a third semiconductor device thereat on said substrate;
installing a first and second semiconductor device in said respective first and second positions of said substrate, said first and second semiconductor devices each having a predetermined performance capability;
determining if said multichip module system has an unacceptable semiconductor device thereon;
disabling circuitry connected to said unacceptable semiconductor device; and

repairing said substrate to have an acceptable semiconductor device thereon by installing said third semiconductor device having an adapter attached thereto, said adapter for installation in said at least one other vacant position in said substrate.

18. (Amended) The method of claim 17, further comprising:
installing a known-good-die as said third semiconductor device having said adapter attached thereto, said adapter for installation in said at least one other vacant position in said substrate for use in said multichip module system as said third semiconductor device.

19. (Amended) The method as defined in claim 18, further comprising:
testing said multichip module system for compliance of said third semiconductor device with a predetermined performance capability for said third semiconductor device.

20. (Amended) The method of claim 17, further comprising:
forming said substrate for use in said multichip module system, said substrate having at least a first position having a first mounting configuration for a semiconductor device thereat, having a second position having a second mounting configuration for a semiconductor device thereat different than said first mounting configuration, and having said at least one other vacant position having, in turn, a predetermined configuration for locating said third semiconductor device thereat on said multichip module system.

21. (Amended) The method of claim 20, further comprising:
configuring one other vacant position located on said substrate to have a predetermined semiconductor mounting configuration for corresponding to said first mounting configuration of said first semiconductor device and for corresponding to said second mounting configuration of said second semiconductor device.

22. (Amended) The method of claim 21, further comprising:
configuring said location of said one other vacant position located on said substrate such that on one side of said substrate said one other vacant position has said predetermined semiconductor mounting configuration which corresponds to said first mounting configuration of said first semiconductor device; and
forming on an other side of said substrate a second vacant position that has a predetermined configuration for corresponding to said second mounting configuration of said second semiconductor device.

23. (Amended) A method of manufacturing a multichip module system comprising:
forming a substrate for use in said multichip module system, said substrate having at least a first position for a semiconductor device to be located thereat, having a second position having a second mounting for a semiconductor device to be located thereat different than said at least said first position, and having at least one other vacant position for locating a third semiconductor device thereat on said multichip module system;
installing a first semiconductor device in said at least said first position of said substrate;
determining if said multichip module system has an unacceptable semiconductor device thereon;
disabling said circuitry connected to said unacceptable semiconductor device; and
repairing said substrate to have an acceptable semiconductor device thereon by installing a second semiconductor device in said at least one other vacant position in said substrate.

24. (Amended) The method of claim 23, further comprising:
wherein said third semiconductor device includes a known-good-die in said at least one other vacant position on said substrate for use in said multichip module system.

25. (Amended) The method as defined in claim 23, further comprising:
configuring said at least one other vacant position located on said substrate to have a predetermined semiconductor mounting configuration for corresponding to a first

mounting configuration of said first semiconductor device and for corresponding to said second mounting of said second semiconductor device.

26. (Amended) The method of claim 23, further comprising:
removing said unacceptable semiconductor device from said substrate.

27. (Amended) The method of claim 23, further comprising:
configuring said location of said at least one other vacant position located on said substrate such that on one side of said substrate said at least one other vacant position has a predetermined semiconductor mounting configuration for corresponding to said first semiconductor device; and
forming on an other side of said substrate a second vacant position that has a predetermined configuration for corresponding to said second mounting of said second semiconductor device.

28. (Amended) The method of claim 23, further comprising:
installing a third semiconductor chip in said at least one other vacant location, said third semiconductor chip having a predetermined mounting configuration for corresponding to said first semiconductor device.

29. (Amended) The method of claim 23, further comprising:
installing a third semiconductor chip in said at least one other vacant location, said third semiconductor chip having a predetermined mounting configuration for corresponding to the second mounting of said second semiconductor device.

30. (Amended) The method of claim 27, further comprising:
installing a third semiconductor chip in said at least one other vacant location on said one side of
said substrate, said third semiconductor chip having said predetermined mounting
configuration for corresponding to said first semiconductor device.

31. (Amended) The method of claim 27, further comprising:
installing a third semiconductor chip in said second vacant location on said other side of said
substrate, said third semiconductor chip having a predetermined mounting configuration
for corresponding to said second mounting configuration of said second semiconductor
device.

32. (Amended) The method of claim 31, further comprising:
disabling circuitry connected to said unacceptable semiconductor device.

33. (Amended) The method of claim 31, further comprising:
removing said unacceptable semiconductor device from said substrate.

34. (Amended) A method of manufacturing a multichip module system comprising:
forming a substrate for use in said multichip module system, said substrate having at least a first
position for locating a semiconductor device thereat, having a second position having a
second mounting configuration for locating a semiconductor device thereat different than
said at least said first position, having at least a first vacant position having, in turn, a
third configuration for locating a third semiconductor device thereat on said substrate, and
having a second vacant position having, in turn, a fourth configuration for locating a
fourth semiconductor device thereat on said substrate;
installing a first semiconductor device in said at least said first position of said substrate, said
first semiconductor device having a first performance capability;

installing a second semiconductor device in said second position of said substrate, said second semiconductor device having a second performance capability;
determining if said multichip module system contains an unacceptable semiconductor device thereon;
determining if said unacceptable semiconductor device is said first semiconductor device;
configuring said at least said first vacant position located on said substrate to have a third semiconductor mounting configuration for corresponding to said at least said first position of said first semiconductor device;
configuring said second vacant position located on said substrate to have a fourth semiconductor configuration for corresponding to said second mounting configuration of said second semiconductor device; and
installing said third semiconductor device having a performance capability of said unacceptable semiconductor device in one of said at least said first vacant position or said second vacant position.

35. (Amended) The method of claim 34, further comprising:
configuring said second vacant position located on said substrate to have a fourth predetermined semiconductor configuration for corresponding to said second mounting configuration of said second semiconductor device.

36. (Amended) The method of claim 34, further comprising:
configuring said location of said at least said first vacant position to be located on said substrate on one side thereof such that said one side of said substrate has said at least said first vacant position thereon having a third predetermined semiconductor mounting configuration for corresponding to a first predetermined mounting configuration of said first semiconductor device; and
configuring said location of said second vacant position to be located on an other side of said substrate such that said second vacant position has a fourth predetermined configuration

for corresponding to said second mounting configuration of said second semiconductor device.

37. (Amended) The method of claim 34, further comprising:
installing said third semiconductor device having a performance capability of said first semiconductor device if said first semiconductor device is determined to be unacceptable.

38. (Amended) The method of claim 34, further comprising:
determining if said unacceptable semiconductor device is said second semiconductor device.

39. (Amended) The method of claim 38, further comprising:
installing a fourth semiconductor device having a performance capability of said second semiconductor device if said second semiconductor device is determined to be unacceptable.

40. (Amended) The method of claim 34, further comprising:
removing said unacceptable semiconductor device from said substrate.

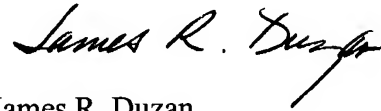
41. (Amended) The method of claim 34, further comprising:
disabling circuitry connected to said unacceptable semiconductor device.

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REMARKS

No new matter has been added. The Applicants again request entry of the amendments as set forth in the Appendices hereto prior to examination of the application on the merits.

Respectfully submitted,



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Enclosures: Version of Claims with Markings to Show Changes Made